

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1-2 and 13 are requested to be cancelled without prejudice or disclaimer.

Claims 3-5, 7-9 and 11-12 are currently being amended. No new matter is being added.

This amendment changes and deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 3-12 are now pending in this application.

Rejections under 35 U.S.C. §§ 102 and 103

Claims 1, 2, 4-11 and 13 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,060,686 to Jones (hereafter “Jones”). Claim 10 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Jones in view of U.S. Patent No. 3,632,955 to Cruickshank et al. (hereafter “Cruickshank”). Claims 3 and 12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Jones in view of U.S. Patent No. 5,938,954 to Onuma et al. (hereafter “Onuma”). Applicants respectfully traverse these rejections for at least the following reasons.

Independent claim 4 recites “wherein the nozzle is formed as a disk having a flat surface area extending in a circumferential direction thereof and having the gas exit at the center thereof, wherein the nozzle has a circular groove extending in a circumferential direction thereof on the surface facing the workpiece.” Jones, Cruickshank, and Onuma fail to suggest at least this feature, or the advantages attendant thereto.

The Office Action on pages 2-3 relies on Jones for allegedly disclosing “a nozzle is formed as a disk having a gas exit at the center thereof” and refers to item 20c of Jones and Figure 2, col. 3, lines 25-40. In contrast to the nozzle as recited in amended claim 4, however, the nozzle outlet 20c of the nozzle 20 of Jones is not formed as a disk, but is a hollow cylindrical nozzle as can be seen in FIG. 2. Thus, Jones fails to suggest “wherein the nozzle is formed as a disk having a flat surface area extending in a circumferential direction thereof and having the gas exit at the center thereof” as recited in claim 4.

Further, Jones also fails to disclose the circular groove as recited in claim 4. Namely, Jones does not disclose that its nozzle 20 “has a circular groove extending in a circumferential direction thereof on the surface facing the workpiece”, as recited in claim 4. Jones fails to disclose any circular groove in the surface of its nozzle that faces a workpiece.

Onuma fails to cure the deficiencies of Jones. Onuma, like Jones, fails to disclose a nozzle “wherein the nozzle is formed as a disk having a flat surface area extending in a circumferential direction thereof and having the gas exit at the center thereof.” While Onuma discloses a nozzle, Onuma does not disclose that its nozzle is formed as a disk having a flat surface area extending in a circumferential direction thereof.

Moreover, Onuma also fails to disclose the groove as recited in claim 4, namely Onuma does not disclose that its nozzle “has a circular groove extending in a circumferential direction thereof on the surface facing the workpiece.” While Onuma discloses grooves 43, the Onuma grooves 43 are linear to allow thin wires 41 to move up and down in an axial direction in frame 42 (See Figs. 8(a), 8(b), 9; col. 15, lines 21-33). Moreover, the grooves 43 project into the irregular surface 46 that is being operated on by the Onuma nozzle. Thus, in contrast to claim 4, Onuma fails to disclose a circular groove that extends in a circumferential direction of a disk-shaped nozzle, nor do the grooves extend along the surface of the nozzle facing the workpiece.

Moreover, Jones and Onuma fail to suggest the advantages attendant to the apparatus of claim 4. The groove arranged as recited in claim 4 may act as resistance against water, even if bubbles are generated during the operation (see present specification, page 8,

paragraph [0036]). Thus, the gas atmosphere may be maintained within the nozzle. Jones and Onuma, failing to suggest a nozzle with the groove as arranged in claim 4, fail to suggest the advantages resulting from this arrangement.

Cruickshank was cited for other features of the claims, but fails to cure the deficiencies of Jones and Onuma.

The dependent claims all ultimately depend from independent claim 4, and are patentable for at least the same reasons, as well as for further patentable features recited therein.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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